

Application/Control Number: 10/773,934

Examiner: Group, Karl E

REMARKS

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Applicant has amended claims 1 and 3 to point out the ratio of 0.1230 to 0.1340 for P_2O_5 to SiO_2 . Support for the amended language can be found in originally filed claim 2. In addition, Claims 2 and 4 have been cancelled.

The Examiner has rejected claims 1, 3, 6-8, 12-16, 18-20, 24-28 under 35 U.S.C. § 102(a or e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious in view of Nagata et al., herein Nagata.

Nagata fails to disclose all the elements found in the amended claims. Claims 1 and 3 have been amended to include the substance of claim 2. Amended claims 1 and 3 now point out that the glass-ceramics of the present invention comprise SiO_2 , Al_2O_3 in a total amount of 86.7% - 89.0%, the ratio of P_2O_5 to Al_2O_3 in mass % is within a range from 0.270 to 0.33 and the ratio of P_2O_5 to SiO_2 in mass % is within a range from .1230 to 0.1450


Nagata does not disclose values of P_2O_5 and SiO_2 which satisfy the above ratio of P_2O_5 to SiO_2 in mass % of claims 1 and 3 of the present invention. According to the present invention, the $\Delta L/L$ curve within the range of 0 to $-50^\circ C$ becomes flat in the vicinity of 0. The ultra low expansion characteristics are thereby realized by having the specific total amount of SiO_2 , Al_2O_3 and P_2O_5 and the specific ratio of P_2O_5 to SiO_2 as found in amended claims 1 and 3. Therefore, the ratio of P_2O_5 to SiO_2 is essential for realizing such ultra low expansion characteristics and Nagata fails to disclose this specific ratio of P_2O_5 to SiO_2 . Therefore Nagata fails to possess the ultra low expansion characteristics of the present invention. Therefore, Nagata fails to anticipate the amended claims. Additionally, no obvious modification of the prior art would point out all of the features of the amended claims. Therefore, the amended claims are non-obvious in view of Nagata.

The Examiner stated that claim 2 in independent form would be allowable.

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Therefore amended claims 1 and 3, which incorporate the elements of claim 2, are allowable as they are essentially variations of claim 2 in independent form. Applicant respectfully submits that since the other claims of the present invention are directly or indirectly dependent on claims 1 or 3, they are in proper condition for allowance.

Respectively submitted,


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